

FACT SHEET FOR NPDES PERMIT WA-002116-4
CITY OF POMEROY WASTEWATER TREATMENT PLANT

SUMMARY

The City of Pomeroy operates a bio-filter treatment plant with aeration and UV disinfection. The plant was upgraded in July, 2002. The improvements provide for nitrification through second-stage aeration and elimination of residual chlorine through the use of UV disinfection.

The Pomeroy wastewater treatment plant discharges to Pataha Creek. In 1994 the EPA approved Total Maximum Daily Loads (TMDL) for three parameters in Pataha Creek. The TMDLs were set for the critical (low-flow) period during summer for ammonia nitrogen, chlorine, and biochemical oxygen demand (BOD). There have been no changes or revisions to the Pataha Creek TMDL since 1994. The Department of Ecology plans to carry out effectiveness monitoring in Pataha Creek in the vicinity of the Pomeroy wastewater treatment plant for BOD, dissolved oxygen, ammonia nitrogen and chlorine during 2005.

The previous permit included both interim effluent limits, for the old wastewater treatment plant, and final effluent limits, for the upgraded facility. The final effluent limits were calculated to account for critical conditions during the period of high flow in Pataha Creek from December 1 through May 31 and during the low flow period from June 1 through November 30. This permit will include the same final effluent limitations listed in the previous permit except for changes in the pH and ammonia limits. The Discharge Monitoring Reports (DMR) for the Pomeroy treatment facility have shown that the plant can easily meet lower ammonia limits, but this type of treatment needs a slightly higher pH range to effectively carry out nitrification. Thus, the ammonia limit has been lowered, or made more restrictive, while the pH limits have been raised slightly to 7.8.

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the State of Washington to administer the NPDES permit program. Chapter 90.48 RCW defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	City of Pomeroy
Facility Name and Address	Pomeroy Wastewater Treatment Facility P.O. Box 370, Pomeroy, WA 99347
Type of Treatment:	Biofilter with second stage aeration and UV disinfection
Discharge Location	Pataha Creek, River Mile 23 Latitude: 46° 28' 33" N Longitude: 117° 36' 50" W.
Water Body ID Number	WA-35-2010

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

The current wastewater treatment plant is a fixed-film bio-filter treatment with second stage aeration and UV disinfection. The facility started operation in July, 2002, and is located just west of the city and adjacent to Pataha Creek (Figure 1).

Prior to the 2002 upgrade, the facility was a high-rate trickling filter, which was built in 1951 and was upgraded in 1977. In 1977, improvements were made to the trickling filter and control building, an anaerobic digester was replaced with an aerobic digester, and a secondary clarifier, chlorine contact chamber and sulfur dioxide dechlorination system were added. In 1993 Ecology issued an Order (DE-93WQs-E304) to the City requiring improvements to the plant in order to meet water quality-based permit limits.

COLLECTION SYSTEM STATUS

The collection system contains approximately 9.2 miles of gravity sewer mains divided into seven drainage basins and one main trunk sewer. Principal materials in the collection system include clay, concrete and PVC. In older areas of the collection system, infiltration through clay and concrete pipe joints is substantial. Much of the main trunk sewer has been replaced in recent years but several drainage basins are susceptible to infiltration.

In 1997, the city completed an infiltration and inflow (I/I) investigation to identify areas in the collection system prone to receiving high flows. The study revealed that unsealed pipe joints in gravity sewer mains or voids in sewer mains and private service lines are the main source of infiltration to the system. In addition, sump pumps are contributing to the inflow into the system. Based on the study, five high priority areas for rehabilitation were identified. In 2001 and 2002 over 6,100 feet of sewer line and 34 manholes were replaced.

The City has a program in place to address the remaining problem areas as finances allow.

TREATMENT PROCESSES

Wastewater from the Pomeroy collection system enters via a 12-inch pipe to the raw sewage pump station, which is located just inside the main gate to the plant. Influent flow is measured by a magmeter flow meter that is located on the pipeline before the screens. The sewage is then pumped to the hydrasieve screens. There are two screens; each of the screens has adequate capacity to handle design flow. After flowing through the screens, the sewage collects in a recirculation sump, and then is pumped into the fixed-film biofilter. The recirculation sump allows for the biofilter effluent to be sent back to the biofilter multiple times before finally being sent to the aeration tank. From the biofilter the sewage is sent to the aeration tank and then on to one of the secondary clarifiers. Sludge from the clarifiers can be recycled to the aeration cell.

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The sludge that is to be wasted is directed to the sludge digester. The sewage flows out of the clarifier and through the UV disinfection unit. The effluent flow is measured by an ultrasonic flowmeter that is located just after the UV tanks (before of the 90° v-notch weir). During flood or high water conditions in Pataha Creek, the effluent flow is pumped to the creek instead of flowing by gravity.

According to WAC 173-230-140, the biofilter treatment plant system (with a design flow of less than 1 million gallons per day) is a Class II facility. The Pomeroy wastewater treatment plant has one operator who is certified at the Group III level.

There are no significant industrial users discharging to the Pomeroy wastewater treatment plant. There are farm chemical businesses in town, but they do not discharge process water to the treatment plant.

DISCHARGE OUTFALL

Secondary treated and disinfected effluent is discharged from the facility via a 12-inch pipe into Pataha Creek. As stated earlier, during flood or high water conditions in Pataha Creek, the effluent flow is pumped to the creek instead of flowing by gravity.

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the clarifiers, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum and screenings are drained and disposed of as solid waste at the local landfill. Solids removed from the clarifiers are sent to the sludge digester, then to the sludge dewatering equipment. After the sludge is dewatered it is stored, then it is to be shipped to the Columbia County Compost facility in Dayton, Washington.

PERMIT STATUS

The previous permit for this facility was issued on April 5, 2001. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), pH, Fecal Coliform bacteria, and total ammonia (as NH₃-N).

An application for permit renewal was submitted to the Department on September 16, 2004 and accepted by the Department on October 8, 2004.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last Class I inspection on March 1, 2005. The inspection found that the Pomeroy facility was operating within permit limits, but needed calibration of flow meters and repair of the alarm system.

Since the upgraded plant started operating in July, 2002, the Permittee has generally remained in compliance, based on Discharge Monitoring Reports (DMRs) submitted to the Department and

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inspections conducted by the Department. Since the new plant has been operational in 2002, there were 18 effluent violations due to pH readings above the 7.5 maximum limit.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. The effluent is characterized as follows:

Table 1: Wastewater Characterization

<u>Parameter</u>	<u>Maximum Daily Value</u>	<u>Average Daily Value</u>
Average influent flow (gpd)	276,000 gpd	202,000 gpd
BOD ₅	16 mg/L	8 mg/L
Total Suspended Solids	11 mg/L	5 mg/L
Fecal coliform	9 cfu/100 ml	2 cfu/100 ml
pH Range	7.73 s.u.	6.85 s.u.
Ammonia nitrogen	1.0 mg/L	0.44 mg/L
Dissolved oxygen	7.2 mg/L	4.6 mg/L

SEPA COMPLIANCE

There are no outstanding SEPA issues with this facility.

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR

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122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for the Pomeroy treatment facility are taken from the City of Pomeroy, Washington, General Sewer and Wastewater Facilities Plan, July 1998, prepared by Anderson Perry and Associates, Inc., and from the March 1999 General Sewer and Wastewater Facilities Plan Amendment No. 1, prepared by Progressive Engineering Group, Inc., and are as follows:

Table 2: Design Standards for the City of Pomeroy WWTP.

Parameter	Flow (MGD) (Year 2020)	BOD ₅ Influent Load (lbs/day)	TSS Influent Load (lbs/day)	NH3-N Load (lbs/day)	Design Population (Year 2020)
Low Flow Period					
Average	0.27	370	370	56	1770
Peak Day	0.43	590	590	85	
Peak Hour	0.89	---	---	---	
High Flow Period					
Average	0.34	370	370	56	1770
Peak Day	0.54	590	590	85	
Peak Hour	1.1	---	---	---	

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

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The following technology-based “High Flow Period” limits for pH, fecal coliform, BOD₅, and TSS are taken from Chapter 173-221 WAC are:

Table 3: Technology-based High Flow Period Limits (December 1 through May 31).

Parameter	Limit
pH:	shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD ₅ (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

High Flow Period Technology –based Limits:

The following technology-based mass limits for the high flow period are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Monthly BOD and TSS effluent mass loadings (lbs/day) were calculated as the maximum monthly design flow (0.34 MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 85.1 lb./day.

Monthly BOD and TSS effluent mass loadings (lbs/day) were calculated as the maximum monthly influent design loading (370 lbs/day) x 0.15 = 55.5 lbs./day.

Thus, the most stringent or protective limit is the 85% removal, or 55.5 lbs./day.

The weekly average effluent mass loading is calculated as 1.5 x 55.5 lbs/day (monthly loading) = 83.3 lbs/day.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water

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quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

ANTIDEGRADATION

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when receiving waters are of higher quality than the criteria assigned, the existing water quality shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for

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adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to Pataha Creek which is designated as a Class A receiving water in the vicinity of the outfall. There are no other nearby point source outfalls. Significant nearby non-point sources of pollutants include agricultural activities. Characteristic uses include the following:

water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

There is an EPA approved TMDL (September, 1994) for Pataha Creek for summertime (low flow) ammonia nitrogen, chlorine, and BOD. The TMDL was developed from a Class 2 inspection of the wastewater treatment plant and a receiving water study report (Cusimano, June 1992). The TMDL is conditional and can be changed based on new information.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	100 organisms/100 mL maximum geometric mean
Dissolved Oxygen	8 mg/L minimum
Temperature	18 degrees Celsius maximum or incremental increases above background
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTUs above background

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Toxics No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC and is defined as follows:

The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical conditions (Cusimano, June 1992). Pataha Creek flow has been divided into two seasonal critical flow periods.

High flow period – December 1 through May 31:

- Acute dilution factor = 1.25
- Chronic dilution factor = 3.52

Low Flow Period – June 1 through November 30:

- Acute dilution Factor = 1.17
- Chronic dilution factor = 2.70

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The low flow period and high flow period critical conditions for Pataha Creek are the seven day average low river flows with recurrence intervals of twenty years (7Q20). Ambient data at critical conditions in the vicinity of the Pomeroy outfall were taken from the Facility Plan, which considered the historical data (Cusimano, June 1992) and monitoring study conducted by the discharger from July 1994 through November 1996. The ambient background data used for this permit includes the following:

Parameter	Value used:	
	Low Flow Period	High Flow Period
7Q20 low flow	3.59 cfs	5.3 cfs

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Velocity	1.39 ft/sec	-----
Depth	0.43 feet	-----
Slope	0.009 (ft/ft)	-----
Temperature	20.7° C	8.3° C
pH (high)	8.2 s.u.	8.2 s.u.
Dissolved Oxygen	8.6 mg/L	-----
Alkalinity	100 mg CaCO ₃ /L	140 mg CaCO ₃ /L
Total Ammonia-N	0.71 mg/L	0.71 mg/L

BOD₅--Under high flow critical conditions (December 1 through May 30) there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitation for BOD₅ was placed in the permit.

The impact of BOD on the receiving water was modeled using Cusimano (1992), at critical condition (historical data) and with the technology-based effluent limitation for BOD₅ described under "Technology-Based Effluent Limitations" above.

BOD₅--Under low flow period critical conditions (June 1 through November 30) there was a prediction of a violation of the dissolved oxygen criterion for the receiving water using the technology-based limit for BOD.

The impact of BOD on the receiving water was modeled using a Streeter-Phelps analysis. The analysis predicted protection of the dissolved oxygen criteria at critical condition with an effluent CBOD of 12 mg/L (BOD₅ limit 15 mg/L), an ammonia value (daily maximum limit) of 4.2 mg/L, and a required minimum effluent dissolved oxygen of 6 mg/L. The calculations used to determine dissolved oxygen impacts are shown in Appendix C. Ammonia limitations are discussed below.

Temperature and pH--The impact of pH and temperature were modeled by Cusimano (1992).

Under critical conditions there was no predicted temperature violation. Therefore, no effluent limitation for temperature was placed in the proposed permit.

Under critical conditions there was a prediction of a violation of the pH criterion for the receiving water. In the previous permit it was noted that an effluent limit of 6.0 to 7.5 for pH was found to meet the water quality criterion for pH. In addition, ammonia nitrogen limitations were calculated based on upon the upper pH limit of 7.5. Therefore, these limits were imposed on the Pomeroy treatment plant in the previous permit. After over two years of operation, monitoring of the effluent has shown that the treatment plant has been able to meet the ammonia limits but the nitrifying organisms in the plant require a slightly higher pH range (usually 7.2 to 8.5) to perform their tasks. Thus, in the proposed permit, the pH limit is raised to 7.8 for nitrification allowances. The higher pH limit then will necessitate a lower ammonia discharge limit which is explained in the "Toxic Pollutants" section below.

Fecal coliform--The numbers of fecal coliform were modeled by simple mixing analysis.

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Under low flow critical conditions there was a reasonable potential to violate the fecal Coliform criterion for the receiving water with the technology-based limit. An average monthly effluent limit of 100 organisms/100 ml was imposed instead of the technology-based limitation.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The following toxic was determined to be present in the discharge: ammonia. As established in the previous permit, reasonable potential exists for this parameter to cause exceedance of the water quality criteria, so effluent limitations are required in this permit.

Chlorine:

The previous permit has the "Average Monthly" limit set at 0.01 mg/L and the "Maximum Daily" limit is set at 0.02 mg/L. The Pomeroy wastewater treatment plant has been able to comply with them. The proposed permit does not include any chlorine limits since the ultraviolet disinfection system is now in operation. Thus, chlorine limits and monitoring are discontinued for this proposed permit period.

Ammonia:

Discharge limits for ammonia were determined for surface water criteria values that were determined using the current water quality criteria – WAC 173-201A.

The parameters used in the high flow period critical conditions modeling are as follows:

Acute dilution factor =	1.25
Chronic dilution factor =	3.52
Receiving water temperature =	8.3° C
Receiving water alkalinity =	140 (as mg CaCO ₃ /L)
pH =	8.4 s.u.
Ammonia nitrogen =	0.71 (as mg N/L)

In the previous permit, based on surface water criteria values, the effluent ammonia nitrogen discharge limits for the high flow period were calculated for a pH limit of 7.5(Appendix C) and were:

Average Monthly:	3.2 mg/L (as N)
Maximum Daily:	6.5 mg/L (as N)

With the pH limit for the high flow period raised to 7.8, the discharge limits for ammonia for the proposed permit are:

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Average Monthly: 2.1 mg/L (as N), 6 lbs/day

Maximum Daily: 2.67 mg/L (as N), 11.9 lbs/day

The parameters used in the low flow period critical condition modeling are as follows:

Acute dilution factor = 1.17

Chronic dilution factor = 2.70

Receiving water temperature = 20.7° C

Receiving water alkalinity = 100 (as mg CaCO₃/L)

pH = 8.2 s.u.

Ammonia nitrogen = 0.71 (as mg N/L)

In the previous permit, based on the ammonia criteria values from this information, the effluent ammonia nitrogen discharge limits for the low flow period were calculated for a pH limit of 7.5 (Appendix C) and were:

Average Monthly: 2.1 mg/L (as N)

Maximum Daily: 4.2 mg/L (as N)

With the pH limit for the low flow period raised to 7.8, the discharge limits for ammonia for the proposed permit are:

Average Monthly: 1.33 mg/L (as N), 3 lbs/day

Maximum Daily: 2.67 mg/L (as N), 6.1 lbs/day

Ammonia – updated criteria:

EPA issued updated ammonia criteria in 1999. Ecology has proposed the adoption of the new acute and chronic criteria with some restrictions where the chronic criteria are to be applied based on the presence or absence of salmonids. These new criteria have been made part of Ecology's new proposed changes to surface water standards which are currently in the process of adoption into the surface water regulation, WAC 173-201A. Until final adoption, the current criteria must be implemented by this permit. Calculations (Appendix C) show that the discharge limits based on the updated criteria are the same as those determined using the surface water criteria in WAC 173-201A.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to

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the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

The previous permit issued in 2001 did not require Pomeroy to do an effluent characterization for whole effluent toxicity since the Pomeroy wastewater treatment plant was in the process of a plant upgrade. The Fact Sheet stated that the discharge will be re-evaluated for whole effluent toxicity during the next permit cycle. Thus, the proposed permit will include the effluent characterization for WET. The WET test results are to be submitted by March 31, 2008, which is prior to the next NPDES Permit application.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sub-lethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

The proposed permit contains requirements for whole effluent toxicity testing as authorized by RCW 90.48.520 and 40 CFR 122.44 and following with procedures in Chapter 173-205 WAC. The proposed permit requires the Permittee to conduct toxicity testing in order to characterize both the acute and chronic toxicity of the effluent in accordance with Chapter 173-205-040(1)(g).

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC₅₀, EC₅₀, IC₂₅, etc. All accredited labs have been provided the most recent version of the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Ecology Publications Distribution Center 360-407-7472 for a copy. Ecology recommends that the Permittee send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard". The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

To set the WET test requirements for the Pomeroy wastewater treatment plant, Ecology uses a ranking procedure from the Ecology Permit Writer's Manual (2002), Chapter XIII, Section 4. The ranking procedure factors in the "Toxicity Likelihood" that the Pomeroy wastewater treatment plant:

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- Discharges ammonia in the effluent. This toxic pollutant is listed in 40 CFR Part 122.
- The facility does have known or suspected water quality impacts.

Next the ranking procedure takes into account the average annual discharge flow and the chronic critical effluent concentration at the edge of the mixing zone. Using this ranking procedure, the Pomeroy wastewater treatment plant rates a "Rank 4" facility classification. The effluent characterization testing requirements for a Rank 4 facility are:

Acute Toxicity 4/year using 1 fish and 1 invertebrate;

Chronic Toxicity: 2/year using 1 fish and 1 invertebrate.

Pomeroy will complete one year of the testing during the NPDES Permit cycle. If toxicity is found, Ecology will issue an administrative order requiring the City to investigate the effluent in order to reduce or eliminate any source of toxicity.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in the NPDES Permits. These criteria were promulgated for the state by the U.S. EPA in the National Toxics Rule (Federal Register, Volume 57, Number 246, December 22, 1992).

The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health, nor does it contain chemicals of concern based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next permit issuance.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

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COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED IN 2001

Existing Limits – High Flow (Dec. 1 to May 31)		Proposed Limits
BOD ₅	30 mg/L, 56 lbs/day (Ave monthly) 45 mg/L, 83 lbs/day (Ave weekly)	Same
TSS	30 mg/L, 56 lbs/day (Ave monthly) 45 mg/L, 83 lbs/day (Ave weekly)	Same
Fecal coliform	200/100 mL (Ave monthly) 400/100 mL (Ave weekly)	Same
pH	Daily Min greater than or equal to 6 Daily Max less than or equal to 7.5	Daily Min greater than or equal to 6 Daily Max less than or equal to 7.8
Total Ammonia	3.2 mg/L, 9.1 lbs/day (Ave monthly) 6.5 mg/L, 18 lbs/day (Max. daily)	2.1 mg/l, 6 lbs/day 4.2 mg/l, 11.9 lbs/day

Existing Limits – Low Flow (June 1 to Nov. 30)		Proposed Limits
BOD ₅	30 mg/L, 56 lbs/day (Ave monthly) 45 mg/L, 83 lbs/day (Ave weekly)	Same
TSS	30 mg/L, 56 lbs/day (Ave monthly) 45 mg/L, 83 lbs/day (Ave weekly)	Same
Fecal coliform	100/100 mL (Ave monthly) 200/100 mL (Ave weekly)	Same
pH	Daily Min greater than or equal to 6 Daily Max less than or equal to 7.5	Daily Min greater than or equal to 6 Daily Max less than or equal to 7.8
Dissolved oxygen	Not less than 6.0 mg/L	Same
Total Ammonia	2.1 mg/L, 4.7 lbs/day (Ave monthly) 4.2 mg/L, 9.5 lbs/day (Max daily)	1.33 mg/L, 3 lbs/day (Ave monthly) 2.67 mg/L, 6.1 lbs/day (Max daily)

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (July 1994) for biofilter with nitrification through second stage aeration.

Total residual chlorine testing of the effluent is discontinued in this permit. The facility upgrade is complete and the wastewater treatment plant UV disinfection rather than chlorine disinfection.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. The laboratory at this facility is accredited for ammonia, BOD, DO, pH, TSS, and fecal coliform. Pomeroy wastewater treatment plant uses a contract laboratory (Anatek Labs in Moscow, ID) for the metals testing.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4. to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4. restricts the amount of flow.

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OPERATION AND MAINTENANCE (O&M)

The proposed permit contains condition S.5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems the Permittee is required in permit condition S7. to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by Ecology under Chapter 70.95J RCW and Chapter 173-308 WAC. The disposal of other solid waste is under the jurisdiction of the Garfield County Health Department.

Requirements for monitoring sewage sludge or biosolids and recordkeeping are not included in this permit. They are regulated under a separate biosolids permit issued by the Ecology's Solid Waste and Financial Assistance Program. This information may be used to develop or update local limits and is also required under 40 CFR 503.

PRETREATMENT

An industrial user survey may be required to determine the extent of compliance of all industrial users of the sanitary sewer and wastewater treatment facility with federal pretreatment regulations (40 CFR Part 403 and Sections 307(b) and 308 of the Clean Water Act), with state regulations (Chapter 90.48 RCW and Chapter 173-216 WAC), and with local ordinances.

Federal and State Pretreatment Program Requirements

Under the terms of the addendum to the "Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10" (1986), the Department of Ecology (Department) has been delegated authority to administer the Pretreatment Program (i.e. act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works (POTWs)). Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program which the Department is delegating to such POTWs because they are in a better position to implement the requirements (e.g. tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program (40 CFR 403.8(f)(1)(iii)), the Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) (40 CFR 403.8 (f)(1)(i)).

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The Department is responsible for issuing State Waste Discharge Permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge (WAC 173-216-110(5)) (Industries discharging wastewater that is similar in character to domestic wastewater are not required to obtain a permit. Such dischargers should contact the Department to determine if a permit is required.). Industrial dischargers need to apply for a State Waste Discharge Permit sixty days prior to commencing discharge. The conditions contained in the permits will include any applicable conditions for categorical discharges, loading limitations included in contracts with the POTW, and other conditions necessary to assure compliance with State water quality standards and biosolids standards.

The Department requires this POTW to fulfill some of the functions required for the Pretreatment Program in the NPDES permit (e.g. tracking the number and general nature of industrial dischargers to the sewage system). The POTW's NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to apply for a wastewater discharge permit from the Department. None of the obligations imposed on the POTW relieve an industrial or commercial discharger of its primary responsibility for obtaining a wastewater discharge permit (if required), including submittal of engineering reports prior to construction or modification of facilities (40 CFR 403.12(j) and WAC 173-216-070 and WAC 173-240-110, et seq.).

Wastewater Permit Required

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

Requirements for Routine Identification and Reporting of Industrial Users

The NPDES permit requires non-delegated POTWs to "take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging to the Permittee's sewerage system". Examples of such routine measures include regular review of business tax licenses for existing businesses and review of water billing records and existing connection authorization records. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as-yet unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in writing, of their responsibilities regarding application for a State waste discharge permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a State waste discharge permit application.

Duty to Enforce Discharge Prohibitions

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision

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prohibits acceptance of pollutants which cause pass through or interference. The definitions of pass through and interference are in Appendix B of the fact sheet..

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition, wastes with excessive BOD, petroleum based oils, or which result in toxic gases, are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this permit be issued for 5 years.

REFERENCES FOR TEXT AND APPENDICES

Anderson Perry and Associates, Inc., 1998. City of Pomeroy, Washington, General Sewer and Wastewater Facilities Plan. July 1998.

Cusimano, Bob, 1992. Pomeroy Wastewater Treatment Plant Limited Class II Inspection and Receiving Water Study on Pataha Creek. Environmental Investigations and Laboratory Services Program. June 1992.

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1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

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Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Pomeroy Conservation District. 1998. Draft Pataha Creek Model Watershed Plan. April 1998.

Progressive Engineering Group, Inc. 1999. General Sewer and Wastewater Facilities Plan, Amendment No. 1 for the City of Pomeroy, Washington. March 1999.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

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Laws and Regulations(<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

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1994. Permit Writer's Manual. Publication Number 92-109

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1976. Chlorination of Wastewater.

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Wright, R.M., and A.J. McDonnell.

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APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

The Department will publish a Public Notice of Draft (PNOD) on May 18, 2005, in the East Washingtonian to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
4601 North Monroe Street
Spokane, WA 99205-1295

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (509) 329-3567, or by writing to the address listed above.

This permit and fact sheet were written by Patrick McGuire.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART-- An acronym for “all known, available, and reasonable methods of prevention, control, and treatment”.

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD₅--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD₅ is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

CBOD₅ – The quantity of oxygen utilized by a mixed population of microorganisms acting on the nutrients in the sample in an aerobic oxidation for five days at a controlled temperature of 20 degrees Celcius, with an inhibitory agent added to prevent the oxidation of nitrogen compounds. The method for determining CBOD₅ is given in 40 CFR Part 136.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

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Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring --Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

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Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

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Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

Pass through -- A discharge which exits the POTW into waters of the-State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

- a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

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Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at (<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

APPENDIX D--RESPONSE TO COMMENTS

No comments were received.